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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,466	09/10/2003	Koichiro Shiraishi	242613US90	2205

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EXAMINER	
LAZORCIK, JASON L	
ART UNIT	**PAPER NUMBER**
1731	

DATE MAILED: 11/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/658,466	SHIRAISHI ET AL.	
	Examiner	Art Unit	
	Jason L. Lazorcik	1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09/11/2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujino (US-4,976,764) in view of the supporting evidence of Choi et. al (J. Electrochemical Society, 149, (1) G8-G11 (2002)). With respect to claim 1, Fujino teaches a method whereby a glass material to be press molded is subjected to:

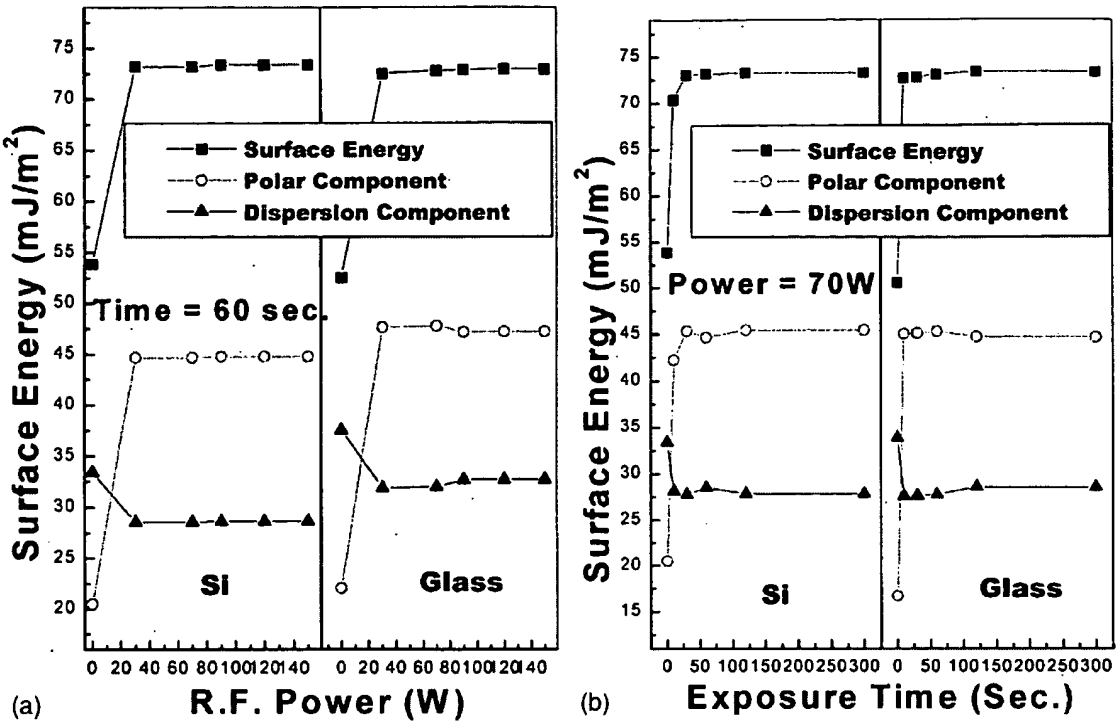
1) A "thorough cleaning by ultrasonic cleaning" (column 3 lines 1-2)

2) An oxidation treatment of the surface of the glass material with activated oxygen ions (Column 2 Lines 2-6).

This glass perform having been thus subjected to oxygen plasma ashing is press molded at elevated temperatures in a nitrogen atmosphere to obtain a molded glass article (Column 4 Lines 1-3).

According to the section entitled Best Mode of Implementing the Invention on page 8 lines 9-10 in the specification, "A glass material employed in molding with a surface free energy of greater than or equal to 60 mJ/m^2 can be obtained by precision cleansing". Further, it is asserted on page 8 lines16-20 that the "methods of precision cleansing the glass material employed in molding that are suitable include...dry methods employing oxidation decomposition of contaminants typified by ... oxygen plasma treatment." The method of preparing a glass material for press molding presented by Fujino utilizes oxygen plasma as a precision cleansing step. By the definition laid out in the specification, Fujino's approach is therefore implied to yield a glass material for press molding that has a surface free energy greater than or equal to 60 mJ/m^2.

Further evidence of Examimers assertion is provided by Choi et. al (J. Electrochemical Society, 149, (1) G8-G11 (2002)) in the figure 1a excerpt below. It is clear from the graph that exposure of a glass substrate (upper right plot) to RF oxygen plasma for 60 seconds consistently yields a surface free energy of ~72 mJ/m^2 independent of applied power from (20W to 140W). Similar results are found for the relationship between surface energy and cleaning time as evidenced in the instant reference Figure 1b (upper right plot). In summary, the relationship between surface energy and oxygen plasma precision cleaning treatments has been well established in the art, and glass substrates exhibiting a surface free energy greater than or equal to 60mJ/m^2 are commonly achieved through oxygen plasma treatments.



Fujino is silent regarding subjecting the cleaned lot of glass material to a sampling inspection test after said plasma treatment in order to insure a threshold surface energy greater than or equal to 60mJ/m^2. That said, it would have been obvious to one of ordinary skill in the art at the time of the invention to monitor said surface energy values as a matter of routine quality control practice in the manufacture of a glass article according to the Fujino process. A sampling inspection process would have been obvious to one of ordinary skill seeking to optimize product quality and reduce product defects by implementing standardized quality control practices. With these points in mind, the immediate claim which makes explicit a step of product surface energy testing is deemed an obvious variant of the Fujino process and therefore is held to be not patentably distinct over prior art.

With respect to claim 2, Fujino teaches that prior to the press molding step, a glass perform is to be cleaned by ultrasonic cleaning and by oxygen plasma ashing. Both plasma ashing and ultrasonic cleansing set forth in the application as acceptable means of producing a glass material with a surface free energy of greater than or equal to $60mJ/m^2$. Since plasma cleaning provides an atmosphere capable of producing a glass material with the stated surface energy it is also understood to produce an atmosphere capable of "maintaining" a surface of greater than or equal to said surface energy. It is further asserted from the Choi graphs presented above that the cleaning process reaches a limiting value indicated by the constant free surface energy vs. time plot after which the oxygen plasma is understood to "maintain" the surface energy value of the substrate. The plasma cleaning step in Fujino therefore reads on claim 2 as keeping the washed glass material in an atmosphere capable of maintaining the desired surface energy of a substrate from after cleaning until the start of the heat softening step.

Claims 3,4, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (US-5,851,252) in view of the supporting evidence of Choi et. al (J. Electrochemical Society, 149, (1) G8-G11 (2002)). Sato teaches a method of fabricating a glass article where a film is formed on the surface of a glass perform prior to being subjected to elevated temperature press molding.

Specifically with respect to claim 3, Sato teaches that a performed glass material or "blank" is exposed to oxygen plasma to remove, by ashing, organic surface contaminants (Column 3 Lines 17-29). As per the rejections of Claims 1 and 2 above,

oxygen plasma is considered to be among several precision cleansing methods capable of producing a surface free energy greater than or equal to 60 mJ/m^2 on a glass material. This preform, having achieved an appropriate surface free energy, is subsequently subjected to a methane plasma to deposit a carbon film (column 3 Lines 41-50) or surface layer on the glass material. Having thus formed surface layer on the glass perform, the perform is subjected to elevated temperatures by inductive heating and ultimately to a press molding step. The Sato process is therefore understood to provide a method of depositing a surface layer on a glass material preform, with surface free energy greater than or equal to 60 mJ/m^2, which is subsequently submitted to heat softening and press molding.

Sato is silent regarding subjecting the cleaned lot of glass material to a sampling inspection test after said plasma treatment in order to insure a threshold surface energy greater than or equal to $60mJ/m^2$. In accord with the arguments presented in the rejection of claim 1 above with the teachings of Choi, it would have been obvious to one of ordinary skill in the art at the time of the invention to monitor said surface energy values as a matter of routine quality control practice in the manufacture of a glass article according to the Sato process. A sampling inspection process would have been obvious to one of ordinary skill seeking to optimize product quality and reduce product defects by implementing standardized quality control practices. With these points in mind, the immediate claim which makes explicit a step of product surface energy testing is deemed an obvious variant of the Sato process and therefore is held to be not patentably distinct over prior art.

Regarding Claim 4, Sato teaches that the deposited film is comprised primarily of carbon and that the thickness of said film should be of a thickness of less than 50 angstroms (Column 3 Lines 41-50). In this case, the claimed range of film thickness of greater than 0.1 nanometer and less than or equal to 1 micrometer for the carbon film overlaps the ranges disclosed by the prior art of less than 50 angstroms (e.g. 5 nanometers) and are thus deemed to be anticipated by said prior art.

Claim 5 is rejected in light of the respective rejections of claims 3 and 4, and the premise set forth in the above rejection of claim 2 whereby a plasma cleaning step is deemed an acceptable method of cleaning a glass preform to produce a glass material with a surface free energy greater than or equal to 60 mJ/m^2. As likewise presented in the rejection of claim 2 above, said plasma processing step is understood to provide an atmosphere capable of "maintaining" said surface energy from after cleaning until the surface layer is formed. Having thus washed the preform, Sato teaches that the glass material is to be exposed to an argon plasma atmosphere prior to forming the carbon surface layer. As with the oxygen plasma discussion above, argon plasma or "argon ion etching" (see specification page 10, line 20) is understood to provide an atmosphere capable of maintaining a free surface energy greater than or equal to said value until the surface layer is formed.

Response to Arguments

Applicant's arguments with respect to claims 1 to 5 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason L. Lazorcik whose telephone number is (571) 272-2217. The examiner can normally be reached on Monday through Friday 8:30 am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JLL

D. W. Mayes

DIONNE A. WALLS MAYES
PRIMARY EXAMINER